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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,081	03/01/2002	Gary W. Grube	P177-US	3189
27520	7590	04/28/2004	EXAMINER	
FORMFACTOR, INC. LEGAL DEPARTMENT 2140 RESEARCH DRIVE LIVERMORE, CA 94550			WHITMORE, STACY	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/087,081	<b>Applicant(s)</b> GRUBE ET AL.	
	<b>Examiner</b> Stacy A Whitmore	<b>Art Unit</b> 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.  
     4a) Of the above claim(s) 26-37 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-25 is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-37 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/14/02, 1/21/03</u> | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____ |
|--|--|

## DETAILED ACTION

1. Applicant's election with traverse of Group I, claims 1-25 in Paper dated March 22, 2004, is acknowledged. The traversal is on the ground(s) that claims 1 and 14 are generic. This is not found persuasive because Claims 27-37 require a varied spacing between signal pads that does not exist in claims 1-25, and therefore claims 1 and 14 are not generic.

The requirement is still deemed proper and is therefore made FINAL.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 7-9, and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Novak et al. (US Patent 6,538,461).

3. As for claim 1, Novak discloses the invention as claimed, including a probe head comprising:

a substrate having a first surface and on opposing second surface [fig. 4b];

a conductive plane embedded within said substrate [102 or 103];  
a plurality of terminals disposed on said first surface [112-S1, 112-S2];  
a plurality of signal pads disposed on said second surface and electrically connected to said terminals [112-G; and figs. 3a and 3b; col. 4, line 55 – col. 5, line 2]; and  
a conductive area disposed on said second surface between ones of said signal pads and electrically connected to said conductive plane; said conductive area being electrically insulated from said plurality of signal pads [112-P2; 112-P1 are conductive areas on second surface between signal pads 112-S1 and 112-S2 that are electrically connected to the conductive plane and electrically insulated from the signal pads 112-S1 and 112-S2].

4. As for claim 2, Novak shows the conductive area is a conductive plane [112-S1].

5. As for claim 3, Novak shows the conductive plane comprises a plurality of openings in which are disposed said plurality of signal pads [the space between 112-S1 and 112-S2 where 112-P1 and 112-P2 are disposed].

6. As for claim 5, Novak shows the signal pads are disposed in a two-dimensional array [fig. 4b, and fig. 3a-3b shows the pads are plural and are at least a two-dimensional array of 1 by N dimension].

7. As for claim 7, Novak shows the conductive area comprises a plurality of ground pads [fig. 4, element 103].

8. As for claim 8, Novak shows wherein at least one signal pad is disposed between each of said plurality of ground pads [fig. 4b, 112-P1].

As for claim 9, Novak shows a two-dimensional array [see as cited in claim 5].

9. As for claim 12, Novak shows a sub-pattern comprising a ground pad disposed between at least two signal pads [fig. 4b, element 112-S2]; and a two dimensional array of said sub-pattern [see as cited in the rejection of claim 5].

10. As for claim 13, Novak shows a ground pad disposed between four signal pads [fig. 4b, elements 112-S2, and figs. 3a-3b wherein the ground pads of fig. 4b are between a plurality comprising at least 4 single pads].

#### Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4-6, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novak et al. (US Patent 6,538,461) in view of Eldridge (US Patent 6,050,829).

12. As for claims 4, 6, and 10-11, Novak discloses the invention substantially as claimed, including the probe head as cited in the rejection of claim 1 above.

Novak does not specifically disclose a space opening between signal pads of 2-20 mils, a pitch in the range of 2-100 mils, adjacent pads at 2-15 mils, or a pitch of 15-50 mils.

Art Unit: 2812

Eldridge discloses space opening between signal pads of 2-20 mils, a pitch in the range of 2-100 mils, adjacent pads at 2-15 mils, or a pitch of 15-50 mils [col. 12, both pitch and spacing are within the claimed ranges, and col. 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Novak and Eldridge because providing spacing and pitch because providing spacing and pitch for the signal pads in the desired claimed ranges would allow for optimizing the spacing and pitch needed for proper probe testing at the signal pads.

#### Allowable Subject Matter

13. Claims 14-25 are allowable over the prior art of record.

14. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose a method of making a probe card assembly comprising at least receiving design data regarding a semiconductor device to be tested by said probe card assembly, said design data including locations of test points on said semiconductor device, and for forming a plurality of contact element pads on said first electronic component disposed to correspond to said locations of said test points on said semiconductor device and electrically connected to a first subset of said signal pads.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stacy A Whitmore whose telephone number is (571) 272-1685. The examiner can normally be reached on Monday-Thursday, alternate Friday 6:30am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

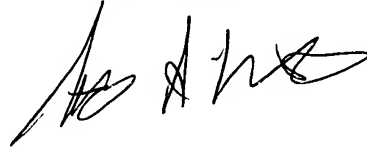
Art Unit: 2812

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stacy A Whitmore

Primary Examiner

Art Unit 2812

A handwritten signature in black ink, appearing to read 'Stacy A. Whitmore', written in a cursive style.

SAW